

XIX.—*On the Habits of the Birds-of-Paradise and Bower-birds of British New Guinea.* By DR. COLIN C. SIMSON.

WHILE in New Guinea in 1905 I journeyed across the Owen-Stanley range of mountains from Port Moresby to Kokoda Station and back, during the months of November and December. In my travels I visited the Moroka, Eafa, Kagi, and Isurava districts, and I was most of the time at fairly high elevations. Some of the notes that I have written are based on information supplied to me by my guide Anthony, who has frequently made expeditions into these mountains to collect birds.

I have seen six of the playgrounds depicted in the first two photographs in the Eafa and Moroka districts, Central division. All of them were situated on the slope of a hill on ground well shaded by trees, and usually a little below the summit of a ridge. They were met with at an elevation, I think, of from 3000 to 6000 feet above sea-level.

Each playground consists of a dome-shaped mass of twigs, about two feet in height and three in width. In this mass of twigs are two rounded openings communicating within and facing the yard in front. Situated between the two openings is an almost black flower-bed, composed of fibre taken from the stems of tree-ferns. Into this bed the bird sticks flowers, berries, bright-coloured leaves, and beetles. In front of this structure is a yard enclosed with twigs, and over this yard in every playground that I saw were strewn brilliant scarlet fruits, and sometimes a few flowers.

The first photograph (text-fig. 26, p. 381) does not depict a typical playground, as there is no yard enclosed with twigs, but since it thus affords a good view of the garden I have chosen it for an illustration. Instead of the enclosed yard there was a forked bough suspended in front of this playground, one limb penetrating the fore part of the structure, while the bough was held in position by the other limb, which was fixed to the trunk of a neighbouring tree by some extremely tenacious glue. I should think that the united efforts of several birds must have been necessary to fix the

bough in position. No doubt the birds used it for perching on when going in and out of the tunnel. Unfortunately I had to remove it, as it obscured the view of the garden, and would have been out of focus in the picture. At the upper left-hand corner of the flower-bed are four or five small oval bodies, which are pale mauve-coloured beetles. The trumpet-shaped flowers plainly seen in the photograph are bright

Text-fig. 26.

Playground of a Bower-bird (*Amblyornis*).

yellow. Of the other white specks those of an irregular contour are cream-coloured flowers, and those with an even contour bright blue berries. The leaves stuck in the garden are of a yellowish green colour. On the ground in front may be noticed the large scarlet fruits. The decorations, as a whole, have a very striking appearance when seen in their natural colours.

I send a second photograph (text-fig. 27), as, although imperfect and only shewing indistinctly the two openings with the flower-bed between them in the background, it has a typical enclosed yard in the foreground.

Text-fig. 27.



Playground of a Bower-bird (*Amblyornis*).

In some of the playgrounds the contents of the garden were arranged in a definite order. In one there were yellow flowers on one side and blue berries on the other. It is very common to see a mass of scarlet fruits in a rotting condition lying a yard or two from the playground, where they have been thrown by the birds.

No doubt the nature of the decorations varies according to the flowers and berries which are in season. I have never seen in these playgrounds the shells, feathers, and pebbles which are met with in those of some of the Australian Bower-birds.

It is very difficult to see the birds in the playgrounds. They keep a sharp look-out for all intruders, hiding in the trees and uttering no cry while anyone is about. After watching a playground without success I have visited it the next morning and found fresh flowers placed in position. I obtained one Orange-crested Bower-bird, which is, I think, *Amblyornis subalaris*, but may be *Amblyornis inornata*. This specimen was shot on a ridge where I had seen three of these playgrounds, but was met with at a slightly higher elevation and about five miles further along the ridge. Anthony and the natives informed me that it is this bird which makes the playground described above. There is a rare native curiosity composed of the separate feathers of the crests of the Bower-birds strung together to form a headdress. The natives, no doubt, obtain the birds by trapping them in their playgrounds.

There is another kind of playground of which I have seen three in the Kagi district and on the main range; all of them, I think, were at an elevation of over 6000 feet, and of one I give a rough sketch in vertical section.

The playground (text-fig. 28, p. 384) consists of a space about four and a half feet in diameter, shaped like a saucer and lined with moss. In the centre of the saucer and round the stem of a bush is a loose bundle of twigs with no openings and about a foot and a half in height. The three playgrounds which I saw were situated on the summits of ridges where they could be easily seen by a traveller, as the native tracks as a rule follow the tops of ridges. I have not been able to find out what bird makes them, but have no doubt that they are formed by a different species to the maker of that first described*.

* [A similar playground has been described and figured by Mr. De Vis in one of his reports on British New Guinea (1890-91), and is there attributed to *Amblyornis subalaris*.—EDD.]

We also shot one specimen of the New Guinea Cat-bird (*Elurædus stonii*), and found several of its nests which were all, I think, at an elevation of about 4000 feet. I saw three myself, situated in low *Pandanus*-trees and easily reached by the hand without climbing. The structure is cup-shaped. It is composed of dry tendrils and contains only one egg of a yellowish white colour.

During our journey we obtained altogether examples of eleven species of Birds-of-Paradise, besides Bower-birds.

Text-fig. 28.



Rough sketch of the Playground of a Bower-bird.

In the district below 3000 feet we found *Paradisea raggiana*, *Ptilorhis intercedens*, *Cicinnurus regius*, *Diphyllodes magnifica*, and a Manucode. Of these *Paradisea raggiana* was very common. From 3000 to 6000 feet above the sea-level we met with *Lophorhina superba*, *Parotia sexpennis*, *Drepanornis albertisi*, *Paradisornis rudolphi*, *Epimachus meyeri*, and *Astrarchia stephanie*. Of these *Lophorhina superba* was extremely common in most places, while *Epimachus meyeri* and *Astrarchia stephanie* were rarely met with, and *Paradisornis rudolphi* was only found in special localities.

From 6000 to 8000 feet in the Kagi district and on the main Owen-Stanley range we found only *Epimachus meyeri* and *Astrarchia stephanie*. At the higher elevation on the main range the latter was quite common, and I have seen as many as six individuals feeding on a single tree. The *Epimachus* was not so often met with.

We were fortunate enough to find the nest of *Paradisornis rudolphi* in our travels. The ridge where it was discovered must have been about 5000 feet above the sea-level and was in the Eafa district. Dense low scrub and bamboos were growing in the vicinity. The female every day made a harsh scraping noise close to our camp, but we were never able to catch sight of it, and thought that it must be a Bower-bird. On the fourth day I crawled into the low thick scrub within a few yards of our camp, and to my surprise the female came flying round my head. The nest was placed on a small tree above the low scrub, which hid it from view. We could never have found it if the bird had not shown us the way to it. A native climbed the tree and brought down a young bird almost exactly resembling the adult female, having the blue wings and white eyelids. I made the native return the bird, which I now regret having done. I might have reared it and could have described the nest, which the boy said was composed of twigs.

I spent many hours looking for the nest of *Paradisaea raggiana* in places where there were numerous males calling, but without success. I think that *P. raggiana* must breed in the low scrub, as is the case with *P. rudolphi*, and not in the high trees where the males call.

The less common Birds-of-Paradise appear to lay only one egg. The nest of *Paradisornis rudolphi* already mentioned contained only one young bird.

Anthony told us that he once found the nest of *Seleucidés nigricans*, built in a *Pandanus*-tree, with one egg. One of my boys (Marria) said that he once found a nest of *Diphyllodes magnifica* containing only one egg, which the bird had hatched. I believe, however, that *P. raggiana*, which is a very common bird, lays three eggs.

I opened the crops of all the species of Paradise-birds that we shot and examined the contents: that of *P. raggiana* contained the pulp of an orange-coloured fruit, called by the natives "*varvio*," sometimes other fruits, and occasionally a tree-grasshopper; that of the *Ptilorhis* two large seeds, one being about the size of a small hazel-nut and nearly as hard, which may have been the stone of a fruit. Other specimens of the *Ptilorhis* had soft fruit and tree-grasshoppers in their crops, while an example of *Cicinnurus regius* had wild-banana pulp and seeds. *Paradisornis rudolphi* had the skin and pulp of a large purple fruit and a tree-grasshopper. One individual of *Epimachus meyeri* had in the crop fruit almost exactly resembling the common English blackberry, and another had what looked like green moss and small green disk-shaped seeds. All the other species had soft fruit and sometimes tree-grasshoppers in their crops.

P. raggiana makes use of a special tree, where the birds congregate to dance and display their plumes. Anthony pointed out to me the dancing-ground of *Parotia seapennis*. It consisted of a piece of ground about four yards in width, cleared of moss and dead leaves, and situated on a ridge. Across this cleared space were three thin branches, about one foot from the ground and bare of leaves. The birds hop to and fro from the branches to the ground whilst displaying their plumes. I also saw what Anthony said was the dancing-ground of *Diphyllodes magnifica*. It consisted of a rounded space in the scrub about three yards in diameter and cleared of moss and dead leaves.

Anthony tells me that the other species of the central division dance on the branches, but do not select any special tree for this purpose.

As regards the moulting-season of the male birds at the lower elevations—*P. raggiana*, *Ptilorhis*, *Cicinnurus*, *Diphyllodes*, and the Manucode—all those that we shot early in November were in full plumage. On coming to the same locality on our return journey in the beginning of December, all the males that we shot had without exception changed their plumage. All the male birds shot at the higher elevations

were in full plumage, with exception of two young birds and two males of *Paradisornis rudolphi*.

As regards the calls of the Paradise-birds, the different species can only be approached by a knowledge of them. The birds are seldom seen, unless followed in this way, with the exception of *P. raggiana* in the low elevations. This species has a succession of loud notes which dominate the forest. *Lophorhina superba* has a shorter cry, but very harsh. *Parotia seppennis* has a short sharp cry, which is almost exactly imitated by the natives, and it is thus easily approached. *Drepanornis albertisi* has several notes of a liquid quality, pleasant to hear. The cry of *Astrarchia stephanie* is a mere twittering. *Epimachus meyeri* has a loud deep cry, somewhat resembling the roll of a kettledrum. I have no distinct recollection of the call of the male *Paradisornis rudolphi*, but Anthony says that it resembles the note of a bell.

XX.—*On the Birds of the Alexandra District, North Territory of South Australia.* By COLLINGWOOD INGRAM, F.Z.S., M.B.O.U.

(Plate IX.)

ALTHOUGH many collections of birds have been made in various parts of Australia during recent years, I think that I am right in saying that hitherto no ornithologist has ever visited the immense tract of land owned by the proprietors of the Alexandra station. This estate lies in the Northern Territory of South Australia and is, roughly speaking, situated about two hundred miles inland from the Gulf of Carpentaria in lat. 19° S. and long. 136° E. (See map, Plate IX.)

In the year 1905 my father, Sir William Ingram, arranged that Mr. W. Stalker, an experienced naturalist, should visit this locality with the object of making an exhaustive collection of its birds and mammals—a task which has occupied him up to the present time. The mammals were presented